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Semblanzas Ictiológicas Iberoamericanas
Evelyn Mariana Habit Conejeros

Hugo L. López
y
Justina Ponte Gómez

Indizada en la base de datos ASFA C.S.A.
2014

“El tiempo es invención o no es nada en absoluto”. Henri Bergson

“El tiempo es olvido y es memoria”. Jorge. L. Borges

A través de esta nueva serie tratamos de conocer diferentes aspectos personales de los integrantes de la comunidad ictiológica iberoamericana.

Esta iniciativa, comparte el espíritu y objetivo de las semblanzas nacionales buscando informalmente, otro punto de unión en la “comunidad de ictiólogos iberoamericanos”.

Quizás esté equivocado en mi apreciación, pero creo que vale la pena este intento, ya que, con la colaboración generosa e insoslayable de los integrantes de este “universo”, señalaremos un registro en el tiempo de la *Ictiología Neotropical*.

Hugo L. López

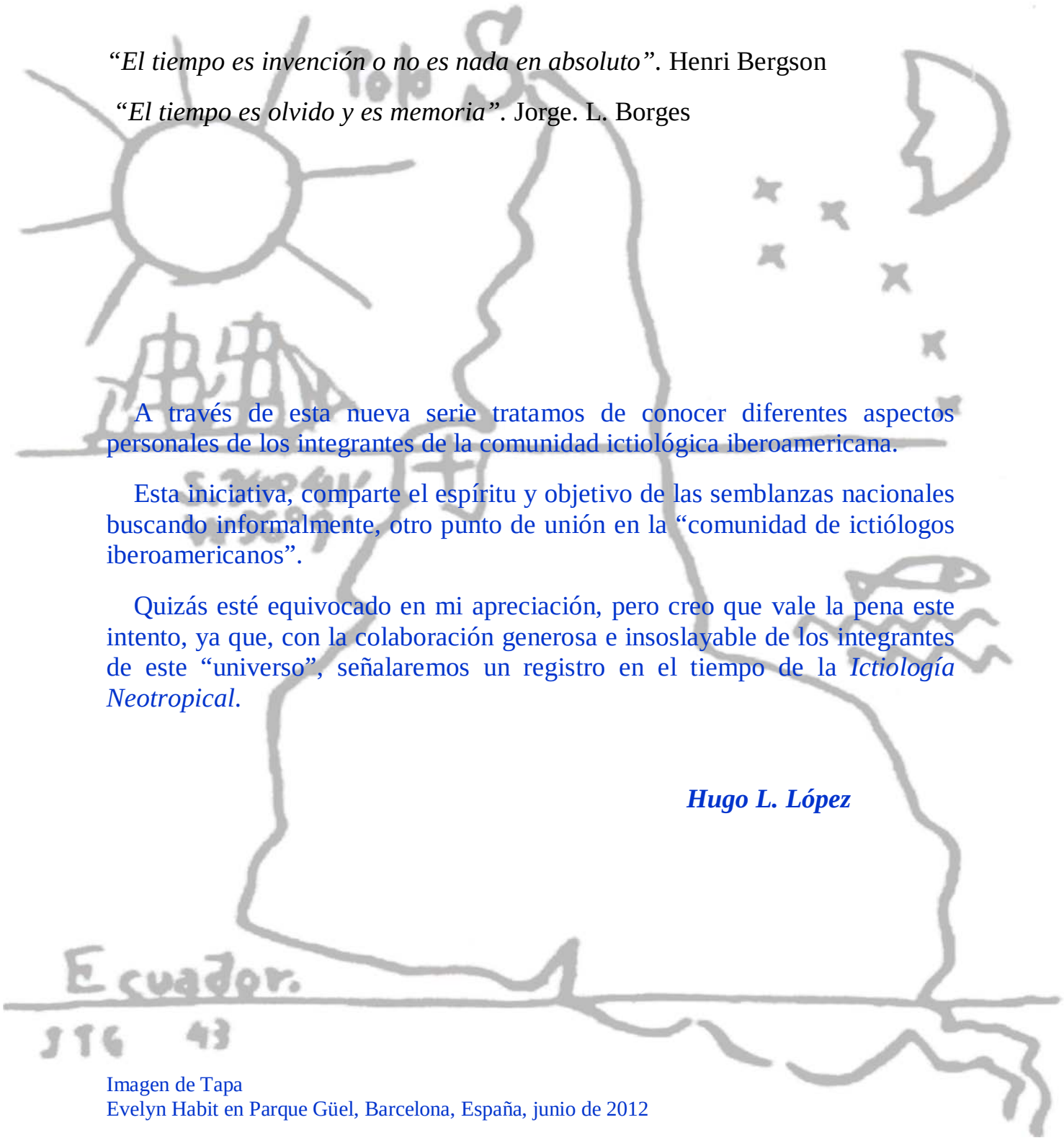

Imagen de Tapa
Evelyn Habit en Parque Güel, Barcelona, España, junio de 2012

Imagen de fondo
Porque en realidad nuestro norte es el sur, dibujo de Joaquín Torres García

Semblanzas Ictiológicas Iberoamericanas

Evelyn Mariana Habit Conejeros

Puerto Varas, Provincia de Llanquihue, Región de Los Lagos, Chile, febrero de 2012
Evelyn Habit junto a sus hijos Rodrigo, Laura y su mascota Oliver

Hugo L. López y Justina Ponte Gómez

ProBiota
División Zoología Vertebrados
Museo de La Plata
FCNyM, UNLP

Abril, 2014

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Lugar de trabajo: Facultad de Ciencias Ambientales, Universidad de Concepción, Chile.

Especialidad o línea de trabajo: Ecología y conservación de peces de agua dulce de Chile.

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Cuestionario

-**Un libro***: De Amor y de Sombra*
-**Una película**: *Fitzcarraldo*
-**Un tema musical**: *Us and Them*, Pink Floyd
-**Un artista**: Edward Hopper
-**Un deporte**: pilates
-**Un color**: azul
-**Una comida**: erizos con vino blanco muy frío
-**Un animal**: *Galaxias platei*
-**Una palabra**: hidrogeomorfología
-**Un número**: 7
-**Una imagen**: un río Patagónico
-**Un lugar**: Piedra Blanca en el río San Pedro, Valdivia
-**Una estación del año**: primavera
-**Un nombre**: Yepayek
-**Un hombre**: mi Padre
-**Una mujer**: Dian Fossey
-**Un personaje de ficción**: Capitán Nemo
-**Un superhéroe**: Xi, de *Los Dioses deben estar Locos*

Sus hijos, Rodrigo y Laura, 2009

Evelyn con sus hijos Laura y Rodrigo en Puyehue, Provincia de Osorno, Región de Los Lagos, Chile, julio de 2011

Freshwater Biology (2006) 51, 1–11 doi:10.1111/j.1365-2427.2005.01461.x

Response of the fish community to human-induced changes in the Biobío River in Chile

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SUMMARY

1. The Biobío River basin of south-central Chile exhibits the greatest species richness of all rivers in Chile, where it is one of the most important rivers for human use. Use for provision of drinking water, irrigation, sewage effluents, hydropower generation and industry has increased dramatically during the last decade. To help understand the effects of human activities on the Biobío River, we document recent changes in the fish community.
2. In this study, current patterns of distribution and abundance of fishes were compared with the expected longitudinal pattern, and to historical data from studies conducted before the rapid development of the last decade. Fish distribution, biomass, abundance and diversity were studied at eight sampling stations in the middle and lower zones of the river in both high and low flow seasons.
3. Contrary to the pattern observed in less impacted river systems, species richness (S), diversity (H′) and abundance [calculated catch per unit effort (CPUE)] all tended to decrease downstream from the uppermost sampling locations. Mean S decreased from 7.9 to 5.4, mean H′ decreased from 0.7 to 0.4, and mean CPUE decreased from 111 to 43 from hyporithral to potamal locations.
4. Comparison with previous records indicates loss or reduction in distribution of native species, and a concurrent expansion in distribution and abundance of tolerant introduced species (e.g. *Gambusia holbrooki*, and *Cyprinus carpio*) over the last 10–15 years. These comparisons suggest a large-scale and long-term effect of recent human impacts on the river.

Keywords: alien species, Chile, fish community, long-term effects, zonation pattern

Introduction

The freshwater fishes of Chile are heterogeneously distributed with respect to latitude, with three areas of freshwater ichthyofaunal endemism in the Chilean Province (Central, South-Central, Southern; Dyer, 2000). Among these areas, the South-Central area (Mataquito to the Toltén River) exhibits the highest level of endemism and species richness. The Biobío River basin is located in the middle of the South-Central area of endemism, and exhibits the greatest species richness of all river basins in Chile (Vila, Fuentes & Contreras, 1999), with 17 native and four introduced species (Campos *et al.*, 1993a,b; Ruiz & Berra, 1994). Native species found in the Biobío River basin are a unique assemblage, with 65% of them endemic to the Chilean Province (11 species) and 80% considered vulnerable (seven species) or endangered (seven species; Campos *et al.*, 1998).

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Global Ecology and Biogeography, (Global Ecol. Biogeogr.) (2010) 19, 697–710

Global Ecology and Biogeography
A Journal of Macroecology

RESEARCH PAPER

Changes in the distribution of native fishes in response to introduced species and other anthropogenic effects

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ABSTRACT

Aim Globally, one of the major threats to the integrity of native faunas is the loss of biodiversity that can result from the introduction of exotics. Here we document recent changes in the distribution of five common fish species that are linked to introductions in Chile.

Location Chile from 28° S to 54° S.

Methods We assess the extent of changes in distribution of galaxiid species by comparing their historical and current distributions based on the results of the most extensive survey of freshwater fishes in Chile to date, a range that encompasses the full latitudinal and elevational range of the Galaxiidae in Chile. We test for relationships of the distributions and abundances of native fishes with the incidence of introduced species.

Results The latitudinal range of *Galaxias macalanus* has declined by 26%, and most of this reduction has occurred in the northern part of its range. *Aplochiton taeniatus* and *Brachygalaxias bullocki* have experienced reductions (8–17% loss) in total drainage area occupied, and they have disappeared from, or are now extremely difficult to find, in latitudes 36° to 41° S, coincidently with areas of urban growth and intense economic activities. The distribution of *Galaxias platei* has, instead, increased considerably. In northern basins, *G. macalanus* has apparently been replaced by an introduced poeciliid *Gambusia* sp. High-elevation systems remain dominated by native *Galaxias platei*, whereas systems at intermediate elevations, especially rivers, are now dominated by introduced salmonids. Within drainages, native galaxiids remain abundant where exotic salmonid abundance is low.

Main conclusions We suggest that negative interactions between introduced and native fish are responsible for some of the range reductions among Galaxiidae in Chile. The severity of the impacts varies with latitude and altitude and is probably related to temperature. The effects of *Gambusia* are restricted to warmer systems. Native fish also appear to have found temperature refugia from salmonids: impacts are low in the warmer northern and coastal systems, as well as in high-altitude relatively cold systems. Native fish also appear less vulnerable to salmonids in lakes than in rivers. This study identifies watersheds critical for the conservation of biodiversity within the Galaxiidae.

Keywords

Anthropogenic impacts, conservation, Chile, distribution, Galaxiidae, introduced salmonids, Patagonia, temperature refugia.

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www.blackwellpublishing.com/geb

Diversity and Distributions, (Diversity Distrib.) (2012) 18, 1153–1165

BIODIVERSITY RESEARCH

Native and introduced fish species richness in Chilean Patagonian lakes: inferences on invasion mechanisms using salmonid-free lakes

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ABSTRACT

Aim Geographic patterns of species richness have been linked to many physical and biological drivers. In this study, we document and explain gradients of species richness for native and introduced freshwater fish in Chilean lakes. We focus on the role of the physical environment to explain native richness patterns. For patterns of introduced salmonid richness and dominance, we also examine the biotic resistance and human activity hypotheses. We were particularly interested in identifying the factors that best explain the persistence of salmonid-free lakes in Patagonia.

Location Chile (39° to 54°S).

Methods We conducted an extensive survey of 63 lakes, over a broad latitudinal range. We tested for the importance of temperature, ecosystem size, current and historic aquatic connectivity as well as measures of human activity (road access and land use) in determining patterns of native and introduced richness.

Results Introduced species richness was positively correlated with native richness. Native and introduced richness declined with latitude, increased with temperature and ecosystem size. Variation in native richness was related to historic drainage connections, while introduced richness and salmonid dominance were significantly affected by current habitat connectivity. We found a total of 15 salmonid-free lakes, all located in remote areas south of 45°S, and all upstream of major naturally occurring physical barriers.

Main conclusions Temperature, as a correlate of latitude, and lake size were key determinants of native and introduced species richness in Chilean lakes and were responsible for the positive correlation between native and introduced richness. We found no evidence for biotic resistance by native species to salmonid expansion, and although the original introductions were human-mediated, current patterns of introduced richness were not related to human activity, as measured by road access or land use. Rather, environmental factors, especially habitat connectivity and temperature, appear to limit salmonid expansion within Chilean freshwaters.

Keywords
Biological invasions, Chile, connectivity, introduced salmonids, latitudinal gradients, Patagonia, species richness.

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http://wileyonlinelibrary.com/journal/ddi

Con sus discípulos en Parque Torres del Paine, Región de Magallanes y de la Antartica Chilena, 2011
De izquierda a derecha: Juan José Ortiz, Evelyn Habit, Néstor Ortiz, Roberto Cifuentes y Jimena Ibarra

Evelyn Habit en río O'Douro, Porto, Portugal, junio de 2012

Evelyn en una cava de Porto, Portugal, junio de 2012

Lago sin nombre en Bahía Elizabeth, Región de Magallanes y de la Antártica Chilena, enero de 2014
Fotografía de Konrad Górski

Evelyn y su discípulo Jorge González en el lago Lackawanna, Puerto Eden, Región de Magallanes y de la Antártica Chilena, enero de 2014
Fotografía de Konrad Górski

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